Approved (Changed Course)

CS 41 Course Outline as of Fall 2020

CATALOG INFORMATION

Dept and Nbr: CS 41   Title: GAME DESIGN
Full Title: Game Design
Last Reviewed: 11/26/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	4.00	17.5	Lecture Scheduled	70.00
Minimum	4.00	Lab Scheduled	0	8	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 140.00   Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable
Grading: Grade or P/NP
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly: CS 74.41

Catalog Description:
This course will introduce students to the basics of game design and theory using analysis, research, critiques and projects. Students will learn about the game industry and what is required to develop a video game through assignments. Students will design, model and build working video game prototypes.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:
Description: This course will introduce students to the basics of game design and theory using analysis, research, critiques and projects. Students will learn about the game industry and what is required to develop a video game through assignments. Students will design, model and build working video game prototypes. (Grade or P/NP)
Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100
Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

			Effective:	Inactive:
AS Degree:	**Area**		Effective:	Inactive:
CSU GE:	**Transfer Area**		Effective:	Inactive:
IGETC:	**Transfer Area**		Effective:	Inactive:
CSU Transfer:	Transferable	Effective: Fall 2010	Inactive:	
UC Transfer:	Transferable	Effective: Fall 2020	Inactive:	

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

Approval and Dates

Version:	05	Course Created/Approved:	2/22/2010
Version Created:	7/15/2019	Course Last Modified:	12/30/2023
Submitter:	Ethan Wilde	Course last full review:	11/26/2018
Version Status:	Approved (Changed Course)	Prereq Created/Approved:	11/26/2018
Version Status Date:	11/26/2018	Semester Last Taught:	Fall 2023
Version Term Effective:	Fall 2020	Term Inactive:	

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Examine and critically discuss the components of games.
2. Identify, examine and differentiate various aspects that make a game fun and compelling.
3. Apply the principles of theoretically sound game design including gameplay, core mechanics, game balancing, and iterative rapid prototyping.
4. Develop analytical skills which can be applied to the multiple uses of both computer hardware
   and software products for simulation gaming.

Objectives:
At the conclusion of this course, the student should be able to:
1. Create, develop and implement effective game design documents and supporting concept art and storyboard drawings for a proposed video game.
2. Perform critical steps to conceive, design, implement and playtest video game prototypes, models and assets.
3. Demonstrate teamwork skills in the development of video games.
4. Present working 3D and/or 2D game prototypes both non-digital and digital games.

Topics and Scope:

I. Role of Game Designer
  A. Player-centric game design process
  B. Game designer skills: passion, communication, teamwork, creativity, and process control
  C. Famous game designers
II. Iterative Design Process
  A. Brainstorming
  B. Game concept idea
  C. Game pitch
  D. Physical prototype
  E. Design documentation
  F. Playtesting
  G. Production
  H. Quality assurance
III. Structure of Games
  A. Players
  B. Objectives, challenges, encounters, and actions
  C. Cooperative versus cooperation play
  D. 2D versus 3D
  E. Goals, win/loss, termination conditions
IV. Game Design Principles and Methodologies
  A. Formal elements of games
  B. Game core mechanics, dynamics, and aesthetics
  C. Concept art and storyboarding
  D. Rules development and structure
  E. Gameplay
    1. Hierarchy of challenges
    2. Skill, stress and absolute difficulty
    3. Commonly used challenges
  F. Game balancing
    1. Asymmetrical game balancing and fairness
    2. Strategy versus luck
    3. Difficulty curves, story pace, player abilities, and character skills
    4. Risk versus reward
  G. Flow and player psychology
  H. Characters, cameras, and control
    1. Player character and non-player characters (NPC)
    2. Cameras: first person, 3rd person, isometric, and virtual/augmented reality
    3. Control: input, actions, and behaviors
  I. Iterative process and rapid prototyping techniques
V. Game Design Documentation
  A. High concept document
  B. Game pitch and document
  C. Level design document
VI. 3D Modeling Introduction and Principles
  A. Modeling concepts
  B. Model implementation
VII. Environment and Game Level Design
  A. Design of environment and world building
  B. Level design document
  C. Player encounters, challenges, heads-up display (HUD), audio, and collectables
  D. Level assets and resources

E. Iterative prototyping

F. Playtesting

VIII. Game Production and Roles

A. Game designer, programmer, artist, and producer

B. Milestones, deliverables, and production workflow

IX. Platforms

A. Desktop

B. Mobile

C. Console

D. Virtual reality

E. Augmented reality

X. Game Creation: Digital and Non-digital

A. Idea and design

B. Prototyping

C. Playtesting

D. Completing original games

E. Analysis and review

Assignment:

1. Read 15 - 20 pages per week
2. Written review of a favorite video game (1 page)
3. Written assignments on research topics (7 - 9 one-page assignments and/or discussions)
4. Exams (0 - 3)
5. Game design projects (6 or more)
6. Final project
7. Game level project
8. 3D modeling tutorial and project
9. Drawings which will include storyboarding and concept art
10. Game level map

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Review and research assignments	Writing 5 - 10%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Game design projects, game level project, and 3D modeling tutorial and project	Problem solving 50 - 70%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Final project, drawings, and game level map		Skill Demonstrations 20 - 30%

Exams: All forms of formal testing, other than skill performance exams.

Exam(s)		Exams 0 - 25%

Other: Includes any assessment tools that do not logically fit into the above categories.

Attendance, participation, and/or research assignment discussions		Other Category 0 - 10%

Representative Textbooks and Materials:
Instructor prepared materials
The Art of Game Design: A Book of Lenses. Schell, Jesse. 2nd ed. AK Peters/CRC Press. 2014 (classic)
Level Up! The Guide to Great Game Design. 2nd ed. Rogers, Scott. Wiley. 2014 (classic)
Fundamentals of Game Design. 3rd ed. Adams, Ernest. New Riders Press. 2013 (classic)
Challenges for Game Designers. Brathwaite, Brenda and Schreiber, Ian. Charles River Media. 2008 (classic)

OTHER REQUIRED ELEMENTS

STUDENT PREPARATION

Matric Assessment Required:	E	Requires English Assessment
Prerequisites-generate description:	NP	No Prerequisite
Advisories-generate description:	A	Auto-Generated Text
Prereq-provisional:	N	NO
Prereq/coreq-registration check:	N	No Prerequisite Rules Exist
Requires instructor signature:	N	Instructor's Signature Not Required

BASIC INFORMATION, HOURS/UNITS & REPEATABILITY

Method of instruction:	02	Lecture
	72	Internet-Based, Delayed Interaction
	71	Internet-Based, Simultaneous Interaction
Area department:	CS	Computer Studies
Division:	72	Arts & Humanities
Special topic course:	N	Not a Special Topic Course
Program status:	1	Both Certificate and Major Applicable
Repeatability:	00	Two Repeats if Grade was D, F, NC, or NP
Repeat group id:		

SCHEDULING

Audit allowed:	N	Not Auditable
Open entry/exit:	N	Not Open Entry/Open Exit
Credit by exam:	N	Credit by examination not allowed
Budget code: Program:	0000	Unrestricted
Budget code: Activity:	0701	Computer & Information Science

OTHER CODES

Discipline:		Computer Information Systems
Basic skills:	N	Not a Basic Skills Course
Level below transfer:	Y	Not Applicable
CVU/CVC status:	Y	Distance Ed, Not CVU/CVC Developed
Distance Ed Approved:	Y	Exclusively online or other technology based instruction
Emergency Distance Ed Approved:	N	None
Credit for Prior Learning:	N	Agency Exam
	N	CBE
	N	Industry Credentials
	N	Portfolio
Non-credit category:	Y	Not Applicable, Credit Course
Classification:	Y	Career-Technical Education
SAM classification:	C	Clearly Occupational
TOP code:	0614.20	Electronic Game Design
Work-based learning:	N	Does Not Include Work-Based Learning
DSPS course:	N	Not a DSPS Course
In-service:	N	Not an in-Service Course